**Outline**

**Pharynx**

Dr. Bennett-Clarke

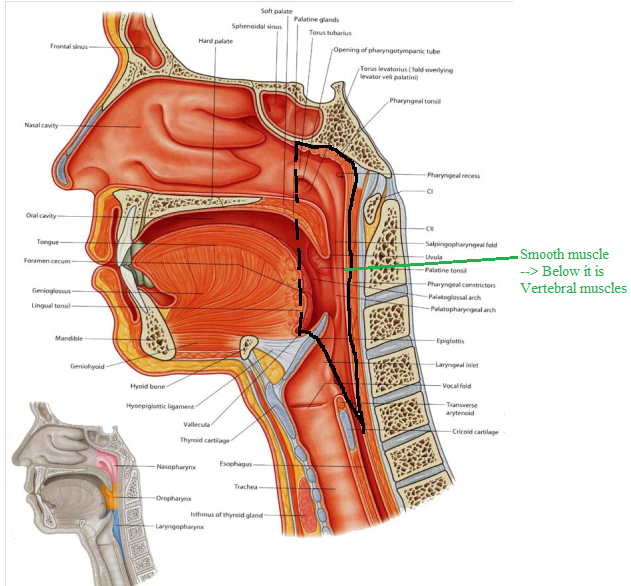
**General Remarks**

The pharynx serves as the common passageway for the GI tract and the respiratory systems. It is a fibromuscular tube that lies anterior to the vertebral column.

* Attaches to the base of the skull superiorly & inferiorly continuous with esophagus

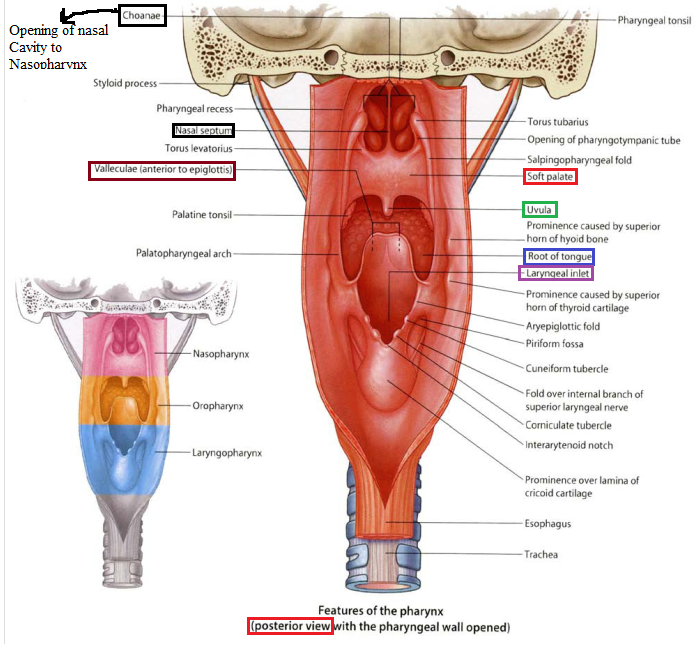
It begins at the posterior aperture of the nose and ends at the esophagus.

There are three regions of the pharynx identified by the three cavities that is continuous with. They are:

1. Nasopharynx 🡪 Posterior to Nasal Cavity
   1. From skull to C2 vertebrae
2. Oropharynx 🡪 posterior to oral cavity
   1. From C2 to C4 vertebrae
3. Laryngopharynx
   1. From C4 to C6 vertebrae
   2. Larynx = closed structure

**Walls of the pharynx-** are composed of 5 layers.

1. Mucous membrane 🡪 Changes along its course
   1. Continuous with nasal cavity, oral cavity, & Larynx
   2. Highly vascular
   3. Lots of mucous glands = keeps it moist
2. Submucosa 🡪 Has blood vessels and nerves for mucous membrane
3. Fibrous layer 🡪 Attached to superior skull
   1. Called Pharyngobasilar fascia
   2. Point of attachments for some of the pharyngeal muscles
4. Muscular layer 🡪 Skeletal Muscles
   1. Not from myotomes
   2. From pharyngeal arches 4 and 6
      1. Cranial nerves associated with them
5. Loose connective tissue 🡪 Buccopharyngeal fascia
6. Retropharyngeal space = behind the Buccopharyngeal fascia

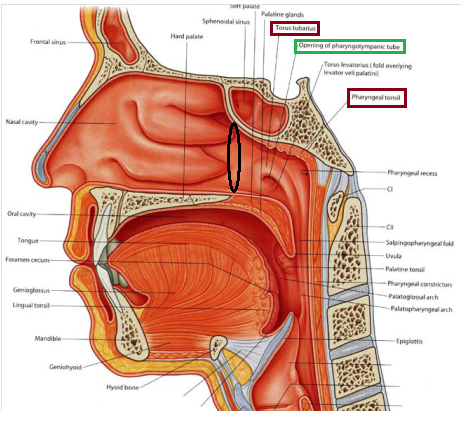


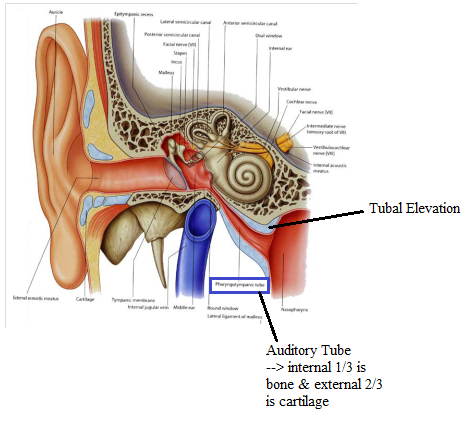
**Nasopharynx** – this is the most superior portion of the pharynx and lies posterior to the nasal cavity.

Features:

Choanae

1. Pharyngeal tonsil (adenoids) 🡪 Ring of Lymphatic Tissue
   1. If becomes inflamed = people will breathe through mouth
2. Tubal elevation 🡪 Torus Tubarius
   1. Cartilaginous end of the Auditory Tube
      1. Or Pharyngotympanic Tube





Auditory tube (pharyngotympanic)

🡪Allows drainage of mucous from middle ear and into Nasopharynx

🡪Equalizes pressure of middle ear

🡪Point of attachment from three muscles

1. Stapedius
2. Tensor Tympani
3. T

Otitis Externa 🡪 Swimmers ear

* Skin along external acoustic meatus inflammation

Otitis Media 🡪 infection of middle ear

* Frequently with upper respiratory infection
* More common in children
  + Due to angle of auditory tube

**Oropharynx**- lies posterior to the oral cavity and is separated from it by the palatoglossal arches.

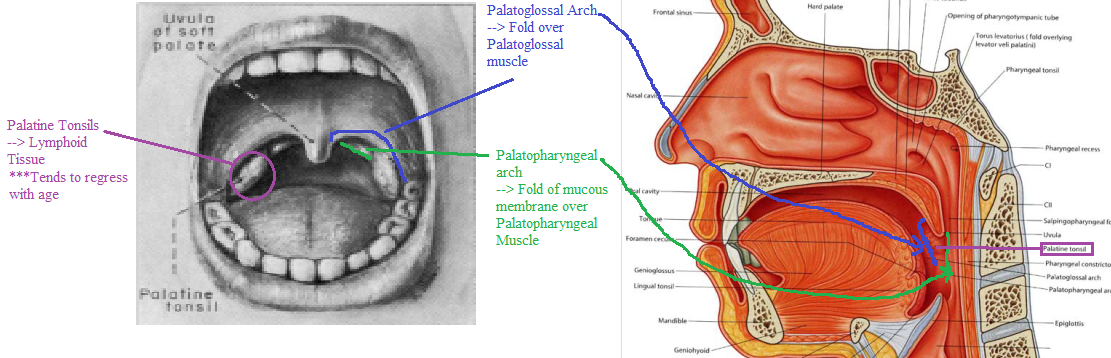
Features:

Palatoglossal arches

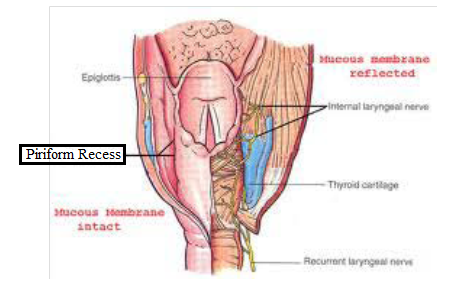
* Mucosal Fold of Palatoglossal Muscle

Palatopharyngeal arches

* Mucosal Fold of Palatopharyngeal Muscle

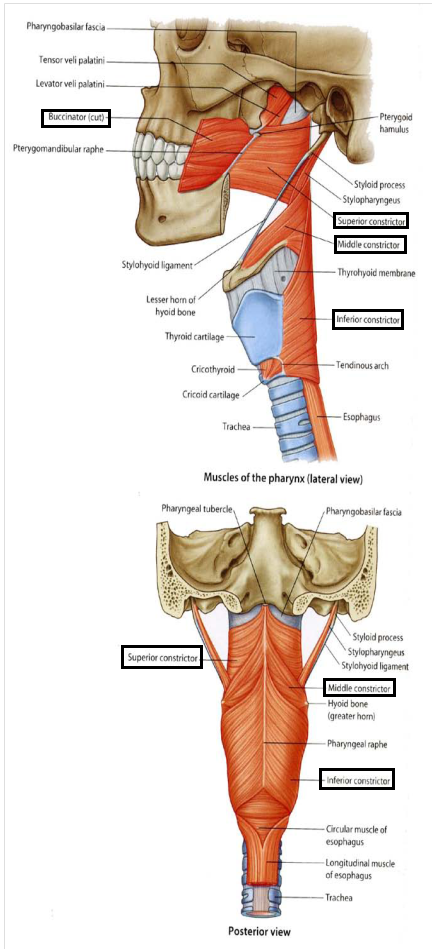
Palatine tonsils 🡪 Lymphoid Tissue

* Tends to regress with age

**Laryngopharynx**- lies posterior to the larynx.

Features:

1. Piriform recess
   1. Junction of muscular Pharyngeal wall with Larynx
   2. Fluid can get trapped back here and create an abscess

**Muscles of the wall** of the pharynx

6 pairs of muscles

1. **Constrictors**- semicircular

A. Superior

*Insertion* = Pharyngeal Raphe of Midline

*Origin* = Pterygomandibular Raphe

* Medial Pterygoid Plate to posterior point of Mylohyoid Line
* Raphe - Buccinator also attached

*Action* = Constriction in rhythmic Pattern to send bolus into esophagus

*Innervation* = Vagus Nerve

B. Middle

*Insertion* = Pharyngeal Raphe of Midline

*Origin* = Stylohyoid Ligament & Lesser and greater horns of hyoid

*Action* = Constriction in rhythmic Pattern to send bolus into esophagus

*Innervation* = Vagus Nerve

C. Inferior

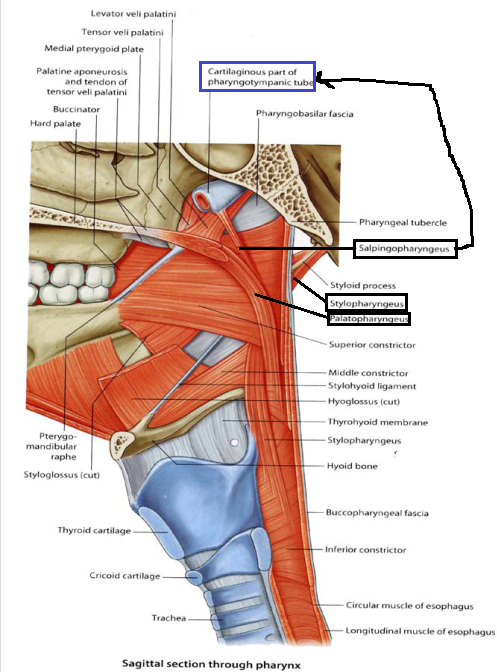
*Insertion* = Pharyngeal Raphe of Midline

*Origin* = Lateral Margin of Thyroid Cartilage & Cricoid Cartilage

Posterior to Cricothyroid muscle

*Action* = Constriction in rhythmic Pattern to send bolus into esophagus

*Innervation* = Vagus Nerve

2. **Longitudinal**- 3 sets of strap-like muscles.

1. Salpingopharyngeus (Must look at inside pharynx to see it)
   1. Origin = Auditory Tube
   2. Insertion = Blends with muscles of pharyngeal wall (Palatopharyngeus)
   3. Acton = Elevation of Pharynx
      1. Helps open pharynx to receive bolus
   4. Innervation = Vagus
2. Stylopharyngeus (see this better from posterior aspect)
   1. Origin = Styloid process of Temporal Bone
   2. Insertion = Blends with muscles of pharyngeal wall
      1. Goes to internal aspect of pharynx between Middle & Superior Constrictor
   3. Acton = Elevation of Pharynx
      1. Helps open pharynx to receive bolus
   4. Innervation = Glossopharyngeal
3. Palatopharyngeus (Must look at inside pharynx to see it)
   1. Origin = Soft palate
   2. Insertion = Blends with muscles of pharyngeal wall (Salpingopharyngeus)
   3. Acton = Elevation of Pharynx
      1. Helps open pharynx to receive bolus
   4. Innervation = Vagus

**Innervation of the pharynx 🡪** Pharyngeal plexus **=** network of nerves along the pharyngeal wall

**Motor**- Muscles are supplied by the VAGUS nerve (Constrictors, Salpingopharyngeus, Palatopharyngeus) & Glossopharyngeal nerve = Stylopharyngeus muscle

**Sensory**- the mucus membrane is supplied by the GLOSSOPHARYNGEAL nerve. The lower portion of the pharyngeal wall receives sensory innervation via the internal laryngeal branch of the Vagus. Also CN V2 at the very superior part

**Parasympathetics** 🡪 Vagus Nerve

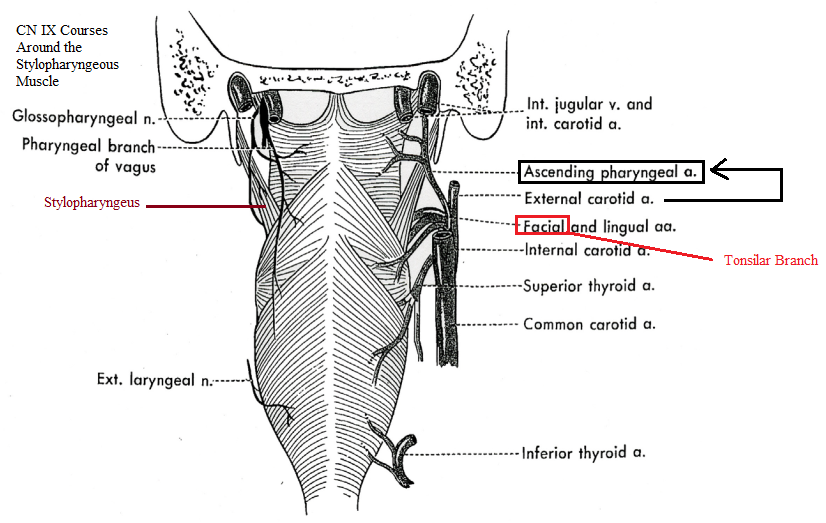
**Sympathetics 🡪** Superior Cervical ganglion via peri-arteriole plexi

**Blood supply to the pharynx**

The following blood vessels contribute to the walls of the pharynx:

1. Ascending pharyngeal artery 🡪 Heads medial from External Carotid

2. Branches of the maxillary artery 🡪 Pharyngeal Branches

3. Branches of the facial artery 🡪 Tonsilar artery

\*\*\*Also other branches that will supply the Pharynx (See Picture)

